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1983 Annual Report

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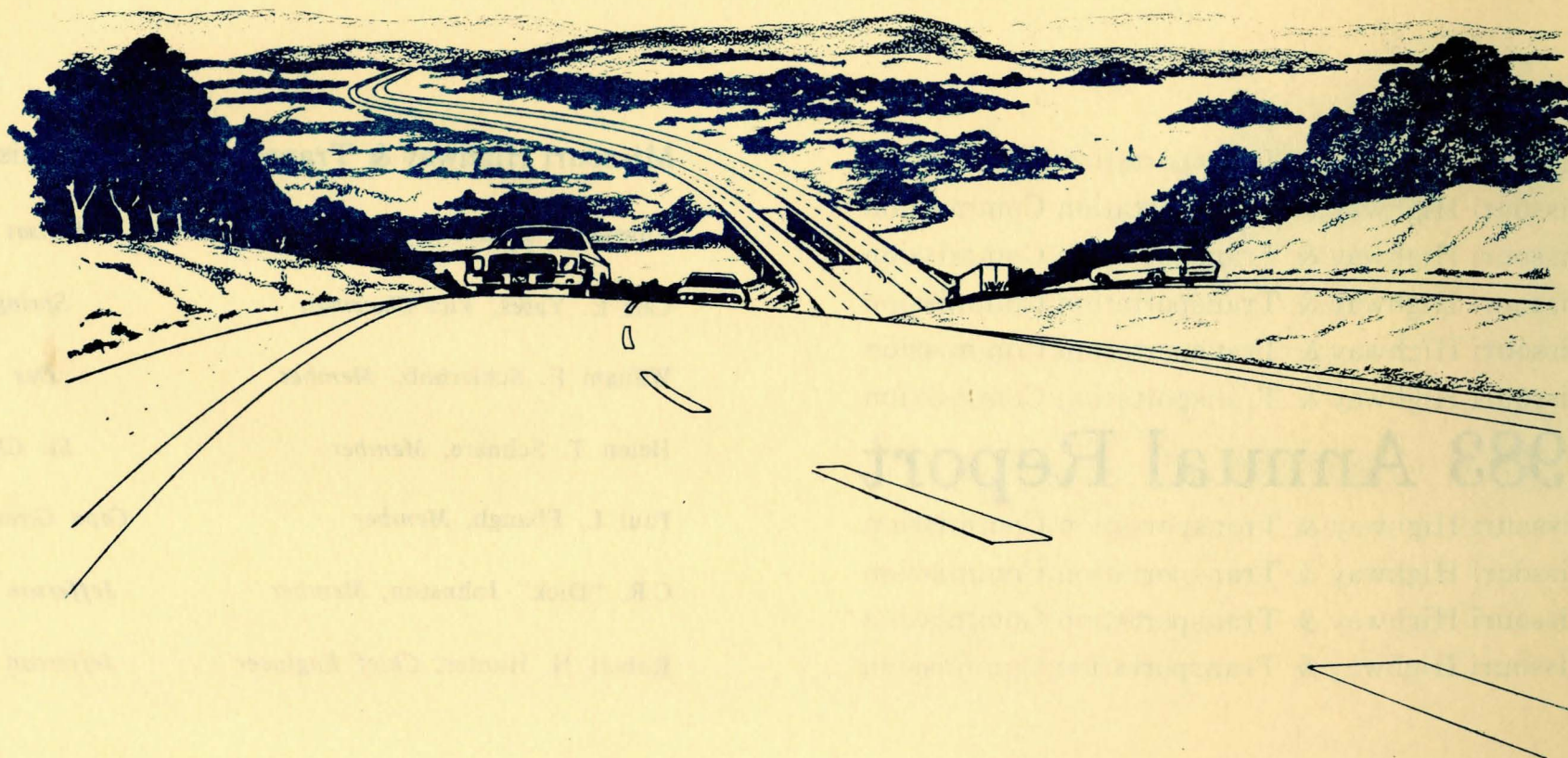
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1983 Annual Report

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Eugene J. Feldhausen, <i>Chairman</i>	<i>Kansas City</i>
Carl E. Yates, <i>Vice-Chairman</i>	<i>Springfield</i>
William F. Schierholz, <i>Member</i>	<i>Des Peres</i>
Helen T. Schnare, <i>Member</i>	<i>St. Charles</i>
Paul L. Ebaugh, <i>Member</i>	<i>Cape Girardeau</i>
C.R. "Dick" Johnston, <i>Member</i>	<i>Jefferson City</i>
Robert N. Hunter, <i>Chief Engineer</i>	<i>Jefferson City</i>



This annual report of the Missouri State Highway and Transportation Commission sets out the activities, work done, receipts, and expenditures of the Commission during the 1983 calendar year.

Information has been assembled in a style meant to provide easy access to statistical material, and also includes a brief description of the functions of each unit within the Highway and Transportation Department during the year.

In carrying out its activities, the Commission relies heavily on an informed public for the successful conduct of the state's highway and transportation program. For this reason, copies of the report are available to the press, radio, and television, and so far as the published numbers will permit, to interested public officials and citizens.

As required by law, it is being sent to the Governor. It is also being distributed to members of the General Assembly.

The Commission hopes the information will also serve to increase

general understanding of Missouri's highway and transportation administration.

The Commission, of course, welcomes inquiries relating to information included in the report.

Foreword

Income

As has always been the case, users supplied the basic revenue needed to finance the state's highway and transportation program. The chart on the opposite page indicates the various sources of income for 1983.

Gasoline tax receipts and the various licenses and fees connected with the ownership and operation of motor vehicles produced \$339,819,072.59, or 60.6 percent of the total income during the year.

Another \$184,365,179.53 of income, representing 32.9 percent, came from user-tax refunds returned to the state in the form of federal aid. On federal aid projects, costs are first paid by the Highway and Transportation Department and reimbursement is made later for those items that are eligible.

Other receipts during the year amounted to \$36,799,331.94, or 6.5 percent of the income.

All of these sources produced a total of \$560,983,584.06.

Disbursements

Disbursements for the 1983 calendar year amounted to \$549,140,838.15. Of this amount, \$266,313,539.75 -- or 48.5 percent -- was expended on new construction and the improvement of existing facilities.

A total of \$149,216,457.37 -- or 27.2 percent -- was spent on maintenance operations.

The third largest expenditure was to other state departments for the costs of fee and tax collec-

tion and for the expenses of the Highway Patrol. This came to \$76,588,130.25 -- or 13.9 percent -- of total expenditures. It should be noted that these expenses as well as all maintenance operations -- for a combined total of 41.1 percent -- must be deducted before any funds are available for construction.

Various transportation functions and overall administrative costs generally accounted for the remaining expenditures.

HIGHWAY FUNCTION	INCOME	DISBURSEMENTS
Basic Revenue:		
Motor Vehicle License	\$113,099,166.49	--
Motor Bus & Truck Fees	2,909,050.00	--
Motor Vehicle Use Tax	24,219,283.23	--
Drivers License Fees	4,856,812.52	
Reciprocity Fund Interest	87,517.86	--
Motor Vehicle Inspection Fees	2,044,818.75	--
Motor Fuel Tax	153,538,066.42	--
Vehicle Sales Tax	39,064,357.32	--
Sub-Total	339,819,072.59	
Incidental Receipts:		
Refunds - Highway Fund	\$ 114,565.52	--
Refunds - Road Fund	14,881,935.04	--
Political Subdivisions	29,600.00	--
Sub-Total	15,026,100.56	--
Federal Reimbursement:		
Federal Highway Administration	\$184,244,510.24	--
Corps of Engineers	120,669.29	--
Sub-Total	184,365,179.53	--
Miscellaneous Escrow Fees	\$ 346,498.69	--
Sub-Total	346,498.69	--
Interest Income - Road Fund	\$ 10,278,364.18	--
Sub-Total	10,278,364.18	--
Construction	--	\$266,313,539.75
Maintenance	--	149,216,457.37
Administration	--	32,565,419.07
Refund of Motor & Aviation Fuel Tax	--	6,875,504.75
O.A.S.I.	--	6,473,962.66
TOTAL FOR HIGHWAY FUNCTION	\$549,835,215.55	\$461,444,883.60
TRANSPORTATION FUNCTION		
Administration	--	\$ 171,355.73
Transit	--	5,595,368.27
Rail	--	3,314,454.73
Aviation	--	669,440.17
Water	--	386,042.09
General Revenue Fund	\$ 3,729,358.78	--
Federal Fund	5,851,050.42	--
Transportation Trust Fund	404,923.49	--
Aviation Trust Fund	191,872.51	--
TOTAL FOR TRANSPORTATION FUNCTION	10,177,205.20	10,136,660.99
<u>MISSISSIPPI RIVER PARKWAY COMMISSION</u>	9,351.00	9,351.00
<u>THIRD STATE BUILDING FUND</u>	961,812.31	961,812.31
<u>OTHER STATE DEPARTMENTS</u>	--	76,588,130.25
<u>GRAND TOTALS</u>	<u>\$560,983,584.06</u>	<u>\$549,140,838.15</u>

Division Reports

Accounting

The accounting and expenditure control for the Highway and Transportation Department is the direct responsibility of the Accounting Division. All of the Department's records of financial transactions are processed and recorded by this Division.

Based on anticipated revenues and disbursements, the Division prepares legislative budget requests as well as annual internal budgets.

The Division reviews all payment documents for accuracy, priority of payment, and to determine if funds are available prior to recording and certification for payment.

The Division processed 173,194 checks during 1983, which represents disbursements of \$465,677,203.15. Disbursements through gasoline and aviation tax refunds and other state departments from highway funds equaled \$83,463,635.00. Total disbursements for 1983 equaled \$549,140,838.15.

Workers' Compensation benefits and medical care payments under Workers' Compensation are made by the Department's insurance carrier; however, these payments are routed through the Accounting Division and recorded to insure absolute accuracy of fiscal records. There were 676 Workers' Compensation cases processed this year.

The Division has the responsibility for administering the regulations and policies of the Highway

Employees' and Highway Patrol Medical and Life Insurance Plan, which includes the new optional life insurance plan. As of December 31, 1983, there were 9,047 health insurance plans, 7,176 state furnished life insurance plans and 6,088 optional life insurance plans in force. For the period from January 1, 1983, through December 31, 1983, there were 19,520 health claim payments with \$8,356,843.87 paid in benefits. During the same period, there were 16 life claims under the state furnished plan and 17 life claims under the optional life plan with \$65,341.22 and \$152,815.91 respectively in benefits paid to survivors.

Bridge

The Bridge Division is responsible for the design of all bridge structures on the state highway system.

During the year 142 designs were completed for letting by this Division. Of this number 103 were designed for major system routes with 39 to be built on supplementary routes.

The total length of all new structures contracted during the 1983 calendar year amounted to 43,031 feet at a cost of \$79,553,184. Of these amounts 9,012 feet contracted at a cost of \$11,090,794 were designed for supplementary routes.

Major structures contracted during the year, which are included in the above statistics, include the

superstructure of a new bridge to carry Route 54 over the Glaize Arm of the Lake of the Ozarks in Camden County and the substructure of a new bridge to carry Route 40 over the Missouri River near Gumbo, Missouri.

In addition to the designs for new structures 75 designs were prepared for repairing, widening or extending of 35,071 feet of existing bridges at a cost of \$20,358,694.

In addition to work on the state systems, nine designs were prepared for county bridge replacements under the Federal Highway Administration Off-System Program.

In addition to structure design this Division has been assisting in the inspection and rating of Off-System or county and/or municipally owned bridges as part of the Federal Highway Administration Bridge Replacement and Bridge Rehabilitation Program.

Construction

Construction work continues on Interstate 170 in the St. Louis area, Interstate 229 in St. Joseph, and Interstate Routes 435 and 670 in the Kansas City area. In addition to this work, construction was active on four new bridges over the Missouri River and two of them were completed during the year. Repair work on Route 54 Bridge over the Mississippi River at Louisiana was completed this year.

Cost for inspection of construction projects was maintained at

a low level by upgrading equipment along with additional personnel training. The increased construction program required an approximate 15 percent increase in field personnel during the year.

Awards were made on 394 construction projects in 1983. This represents 1,143 miles of road construction.

Two hundred eighty-one projects included Federal-Aid while 113 projects were financed entirely by state funds. The money value of the awards, including engineering and non-contractual costs, totaled \$360 million.

MONEY VALUE OF 1983 AWARDS

Interstate System	\$140 million
Primary System	\$179 million
Supplementary System	\$ 38 million
Non-Contractual Cost	\$ 3 million
TOTAL	\$360 million

The Interstate system contracts involved new construction, upgrading existing dual facilities to Interstate standards, rest area modifications, and implementing the latest safety features for highway traffic. Approximately 12.7 miles were completed to Interstate standards this year. An additional 70 miles of existing Interstate pavement were resurfaced with asphaltic concrete this year. There are now under construction approximately 25.1 miles of Interstate road.

The Primary and Supplementary system contracts include costs of construction work in rural and

urban areas and projects financed either with Federal-Aid or with 100 percent state funds. They include new construction, bridge replacements, widening, and resurfacing projects. Where applicable, the latest safety features were included.

ACTIVE PROJECTS AS OF DECEMBER 31, 1983

System	Awarded in 1980	Awarded in 1981	Awarded in 1982	Awarded in 1983	Total
FEDERAL-AID					
Interstate	0	1	6	64	71
Primary	0	2	6	84	92
Supplemental	0	0	1	31	32
Off-System	0	0	0	7	7
Sub-Total (FA)	0	3	13	186	202
100 PERCENT STATE FUNDS					
Interstate	0	0	2	1	3
Primary	0	0	2	20	22
Supplemental	0	0	2	4	6
Sub-Total (St.)	0	0	6	25	31
GRAND TOTALS	0	3	19	211	233

Equipment & Procurement

This Division is responsible for procuring and maintaining a fleet of equipment that will efficiently and effectively permit the Department to carry out its functions. At the close of the year 1983, the Division was maintaining 5,796 rental units consisting of passenger cars, trucks, carryalls, tractors, mowers, motor-graders, and various miscellaneous units. This is a reduction from 1982 of two units.

Although the continuing reduction in the number of rental units did not result in a usage reduction in 1983 due to an increase in maintenance activities during the year, it has resulted in a better utilization per unit record.

We have not fully completed the change over to multi-viscosity motor oil and hydraulic fluids but expect to sometime this year. Depleting the old stocks has delayed this process beyond the target date.

Fuel used in the fleet in 1983 was up approximately 2.4% over 1982. The total cost for fuel was due to a decrease in the unit cost of the fuel.

A new fuel monitoring program is being developed and tested. It is expected to be completely operational early in 1984. This program will allow detection of fuel consumption problems by location as well as on individual equipment units.

It required 7,127,606 gallons of gasoline, 170,929 gallons of kerosene, and 1,657,001 gallons of diesel fuel to operate the fleet. In addition, 11,209 gallons of anti-freeze, 101,007 gallons of lubricating oil, 49,761 gallons of hydraulic oil, and 93,023 pounds of multi-purpose gear oil and lithium grease were used. Tires and tubes costing \$757,059.90, tire chains costing \$23,506.50, and shop equipment, parts, and supplies totaling \$4,872,525.01 were contracted for during the year.

The Division is also charged with the responsibility of providing

all tools, supplies, and materials that are required in the operation of the Department. The quantities of the various materials purchased for use in the maintenance of the highway system are listed below:

Various Types of Asphalt	45,483,900 Gallons
Gravel	565,845 Cubic Yards
Stone and Chat	1,253,714 Tons
Paint	391,658 Gallons
Reflectorizing Spheres	2,421,350 Pounds
Sodium Chloride (Winter 1982-83)	75,114 Tons
Calcium Chloride (Winter 1982-83)	3,737 Tons
Agricultural Seed	47,150 Pounds
Treated Wood Sign Posts	38,546 Each
Steel Sign Posts	26,850 Each
Grader Blades	499,775 Pounds

The Headquarters Sign Shop produced a total of 81,498 signs and markers of various shapes and sizes amounting to \$713,948.95 during the year.

As a cost cutting measure other types of supplies and equipment are produced at the Headquarters Garage as time and labor are available.

Legal

During the calendar year 1983, the Chief Counsel's office instituted 16 separate actions in the various circuit courts of the state for the condemnation of right-of-way for state highway projects. These actions involve the acquisition of 60 separate tracts of land. One hundred eighty-five condemnation cases were disposed of by the entry of final judgments during the year. The appellate courts of Missouri rendered decisions in 54 separate cases to which the Commission was a party. In

the condemnation cases which were finally disposed of during the year, refunds of \$1,134,051.32 were obtained, representing various cases in which the final disposition was less than the amount which had originally been awarded by the condemnation commissioners and deposited in court.

The Chief Counsel's office handled the final disposition of 2,293 claims for damage to Commission-owned property resulting in a total recovery for such damage of \$740,876.84. In addition to claims for damage to Commission property where voluntary reimbursement for such damage was obtained, 54 actions were filed in court for the collection of damage to Commission-owned property, and 26 such cases were brought to final conclusion.

During 1983, 57 various types of suits were filed against the Commission, 29 of which were for alleged torts claiming defects in facilities. The Commission instituted 13 actions for enforcement of the Beautification Law.

In addition to cases disposed of as set out above 95 other cases of various types were disposed of during the year.

In addition to other collections, miscellaneous collections were made by the Chief Counsel's office totaling \$57,333.20.

At the end of the year, the Commission had 356 condemnation cases pending in the various circuit courts of the state, and 201 cases of other types, many of which are tort proceedings.

Planning

The Division of Planning collects, analyzes, and processes financial, historical, traffic, and other data used in the planning process to identify highway needs, to develop the highway improvement program, and to produce financial statistics.

Planning for the transportation needs of urban areas is a continuous process. During the year a comprehensive planning process was implemented for the newly established Joplin urbanized area. There is now a comprehensive transportation planning process for the six urbanized areas of Columbia, Kansas City, St. Joseph, St. Louis, Springfield and Joplin. It is carried on in a continuous and cooperative manner with local officials. Over half of the data compiled for the National Highway Performance Monitoring System were developed from the characteristics of these six urbanized areas.

Information used to update the National Highway Performance Monitoring System for the rural area of the state was also collected and reported. Physical and geometric data was reported for publication in the Interstate, Primary, Secondary, and Bridge service ratings. There were also studies conducted to determine statewide highway and bridge deficiencies. The 1984 Highway Right-of-Way and Construction program was updated to reflect the award of contracts, program additions, and revisions.

The annual Travel Accident report was completed. It included travel, accident, accident rates, and related data for local and state highway systems.

Vehicle traffic volume counts and truck size-and-weight data were gathered on the state highway system. This information was utilized in identifying needs, designing improvements, and programming projects for highways. Approximately 4,000 vehicle counts and 145 vehicle classification studies were made throughout the state. Speed information on highway traffic was obtained through the periodic monitoring of 34 locations on the state system. The travel data compiled on the state system showed an increase in vehicle travel of approximately four percent over 1982.

During the past year there were 19 county general highway maps revised or redrawn. There was also an update on 13 urban vicinity maps and on 108 city maps.

The following table shows the status of the state highway system as of December 31, 1983.

COMMITMENTS AS OF DECEMBER 31, 1983		
ROAD MILES		
SYSTEM		
INTERSTATE		1,132.496
PRIMARY		6,832.324
SUPPLEMENTARY		24,273.881
TOTAL		32,238.701
TYPE		
OILED EARTH		0.000
GRANULAR		4.274
LOW TYPE BITUMINOUS		24,978.131
HIGH TYPE BITUMINOUS		4,511.078
CONCRETE		2,745.218
TOTAL		32,238.701

Materials & Research

The Division of Materials and Research is responsible for the quality of materials used in the construction and maintenance of the Missouri highway system. Research is routinely conducted to improve materials utilizations and to refine design and construction procedures for highways. Designs for all bituminous and concrete mixtures are provided by this Division.

Field inspections, including testing, sampling approval of materials used in highway construction and maintenance, are performed by personnel assigned to the ten Districts. The Division provides staff assistance and advice to District personnel regarding materials inspected and any new procedures required.

The central laboratory, located in Jefferson City, is a nationally recognized and approved laboratory for the testing of highway materials. During 1983, several new pieces of testing equipment were obtained, most notably being an atomic absorption spectrophotometer used for the analysis of metallic components of materials, including portland cement and various steel items such as culvert metal and snowplow blades. As in the past, the laboratory received very good ratings from the Cement and Concrete Reference Laboratory inspection team.

All materials requiring specialized testing are shipped to the central laboratory. To insure uniformity of testing procedures throughout the state, many of the materials tested in the field are also tested in the central lab. A total of 28,972 samples were handled by the lab during 1983, including those of an experimental or investigative nature. Quantities of those materials most commonly used which were tested and approved in 1983 are shown in the table.

The Division engaged in 12 major research projects during the year. The projects entailed both laboratory and field investigations. Items such as methods for the recycling or existing pavements, and special methods and systems to help prevent or minimize deterioration of bridge decks and pavements, were among those investigated. Smaller investigations such as condition surveys for individual bridges or sections of pavement were also completed.

As a portion of the Department's continuing efforts to conserve materials and cut costs, new products proposed for use on highway construction and maintenance operations are evaluated. The constantly increasing cost of traditional highway construction materials such as asphalt, portland cement, steel, and aggregates has made it necessary to investigate newly developed methods and materials that show promise to either improve performance or reduce costs. The Division investigated 76 new projects during 1983, approving 14 and disap-

proving 22. The remainder are still under consideration.

Subsurface information required for proper highway design is established by the use of drilling equipment. Special investigations

were conducted regarding geotechnical matters such as foundation stability and settlement, slide corrections, soil and material surveys, retaining structures, bridge foundations, sinks, caverns, and mine subsidence.

1983 COMMONLY USED MATERIALS INSPECTED, TESTED AND APPROVED

Aggregates	6,961,100 Tons
Cement	359,840 Tons
Reinforcing Steel	15,275 Tons
Culvert Pipe	
Corrugated Metal	92,549 Linear Feet
Reinforced Concrete	132,952 Linear Feet
Vitrified Clay	4,876 Liner Feet
Joints - Bituminous, Fiber	116,314 Linear Feet
Joints - Rubber	17,594 Square Feet
Guardrail	163,408 Linear Feet
Posts, Metal	65,661 Posts
Precast Units	
Median Barriers	6,038 Units
Concrete Beams	874 Units
Concrete Inlets	1,006 Units
Concrete Manholes	182 Units
Lumber and Square Posts	880,987 Board Feet
Piling and Round Posts	1,540 Linear Feet
Bituminous Material	
Cutback	19,515,404 Gallons
Penetration	3,814,629 Gallons
Emulsified	28,900,319 Gallons
Asphalt Cement	24,781,308 Gallons
Paint	395,319 Gallons

Maintenance & Traffic

During 1983 the total mileage of roadways maintained by the Division increased six miles to a total of 33,914 miles. This figure includes recreational access roads, outer roadways, ramps, service roads and maintenance agreement sections.

One of the major expenditures of the Maintenance and Traffic Division is on low type bituminous surfaced routes. For the past several years we have been reducing maintenance surface treatment in an effort to reduce maintenance expendi-

tures. However, for the last three years we have budgeted for 2,476 miles of maintenance leveling course. In addition, in 1983 we completed 412 miles of maintenance leveling course. In addition, in 1983 there were 412 miles of contract leveling course completed.

A major objective for cost and energy control continues to be reduction in the use of cutback asphalts. In 1983 there were 31,064,500 gallons of emulsified asphalt and 14,419,400 gallons of cutback asphalt used; thus, 68% of the total asphalt used was emulsified asphalt. In 1983, approximately 45,483,900 gallons of asphalt and 1,517,000 cubic yards of aggregate were used in bituminous surface and patching operations.

In a continuous effort to conserve energy, the Department has been building pool parking areas in and adjacent to the metropolitan areas. This program was started in 1975 with the original construction of 717 spaces. Since 1975 there have been 3,615 parking spaces added by the construction of new areas and the expansion of existing areas. In December, 1983 there were 4,332 spaces, 215 of which were added in 1983 for a yearly increase of five percent. The average daily usage in the last quarter of 1983 was 2,420 vehicles compared to 2,405 in the last quarter of 1982. In 1975 there was an average usage of 42% of the available spaces. This has increased to 57% in the last quarter of 1983.

In 1983 our mowing policy was changed and now all mowable rural

rights-of-way are cut every year. In 1983 approximately 339,850 acres of right-of-way were mowed, or 54% more acres than in 1982. The cost to mow this acreage in 1983 was \$8,728,447, or an average cost of \$25.68 per acre. In addition to mowing, \$1,595,138 was spent on litter pick-up. This was a 19% increase over 1982 expenditures.

Division personnel made routine inspections on all state-maintained bridges to determine their condition and need of repairs. Approximately 6,518 bridges on the state highway system were inspected. Thirty-seven of these are Missouri or Mississippi River crossings, 19 of which are jointly maintained by adjacent states. The Division repair crews completed structural repairs on 147 bridges. In addition, 12 other structures were repaired because of major collision damage. There were 109 bridges painted during the year, with 78 receiving a complete painting. The remaining 31 had the bearings and end of stringers spot painted. Also 70, or 1.1%, of the bridges on the state highway system were treated with a mixture of 50% linseed oil and 50% mineral spirits to protect bridge decks from chloride damage.

The Department is now maintaining 20 rest areas on the Interstate system, four of which include tourist information centers. In addition, there is a tourist information center located on U.S. Route 61 in Hannibal which is not connected with a rest area.

Efforts to control Johnson-

grass continued, especially in counties which have adopted the Johnson-grass Law. In 1983 approximately 6,800 acres were sprayed by contract and approximately 4,300 acres were sprayed by maintenance forces. In addition to the Johnsongrass control program, approximately 19,000 acres were chemically treated to control thistle, weeds, and brush.

Approximately 34,000 pounds of seed for use in overseeding and to spot-seed disturbed areas of right-of-way were purchased at a cost of \$28,000. Included was 9,400 pounds of crown vetch seed used for planting on unmowable slopes.

There were 75,632 overdimension, overweight, and overdimension/overweight special permits issued during the year. Of that total, 21,383 - or 28% - were issued through the ten District offices. Included in the total were 2,122 permits issued without fees to governmental agencies or subdivisions.

The winter of 1982-83 was very mild compared to the 1981-82 winter. As a result our usage of chemicals decreased from the previous winter. Some 75,111 tons of sodium chloride and 3,737 tons of calcium chloride were purchased. A total of \$12,042,767 was spent on snow removal during the winter season for a decrease of 34% from our 1981-82 winter season.

The modernization of existing traffic signals throughout the state continued. Maintenance forces upgraded or installed new traffic control equipment in 36 existing signalized intersections. One inter-

section was signalized by permit. A program to interconnect various traffic signals for traffic progression was continued. New-product equipment to control traffic signals more economically was placed in service for evaluation. Contracts were let to replace 100 aging mobile radios throughout the state.

A program of systematic monitoring of peak period freeway traffic operations in the St. Louis and Kansas City metropolitan areas was continued in 1983. This program provided information on the location and severity of traffic congestion on approximately 170 miles of these systems. Additional analyses were made which will improve the monitoring procedures on the freeway system. Specific problem locations also received study. A study was done at U.S. 71 and Main in Grandview. A study was also begun of the congestion on Interstate Route 270 at the Interstate Route 170 interchange in St. Louis County. Since the remainder of I-170 has been opened to traffic, the study will be resumed and should be completed this year. Both 24-hour and peak traffic volume trends were monitored on the freeway systems in St. Louis and Kansas City, and both peak hour and 24-hour volumes showed a consistent increase in 1983 over the 1982 volume.

Some 53,000 accidents which occurred on the state highway system were coded and placed in the accident data record system. These reports were provided by the State Highway Patrol and approximately 565 city and county law enforcement agencies.

Speed studies were conducted at 140 locations and traffic volume counts were made at 185 locations.

The Division's 120/Medium Improvement Program continued throughout the year and 38 locations were investigated where a higher than normal number of accidents had been occurring. At 24 of these locations corrective measures were implemented.

One hundred locations which had forty or more accidents in a three year period were investigated and countermeasures were evaluated for possible funding under the 1973 Federal Highway Act. Ten of these locations have been tentatively programmed for improvements at a total estimated cost of \$622,600. One hundred additional locations containing 20 or more accidents in a three year period are also being evaluated for possible funding under this program.

There were 739 billboards removed by property owners and 59 removed by state forces under the outdoor advertising laws and regulations.

Activities funded from 402 Program funds under the 3+ Standards of the Missouri Highway Safety Program and coordinated by the Department are as follows:

The Traffic Engineering Assistance Program. This program aids political subdivisions with traffic engineering problems where a comprehensive view is required and where the subdivision does not have the personnel available to carry out the review. Services are performed by consultants retained by the Commission.

Sixteen studies were conducted in 12 political subdivisions during 1983. The average cost of these studies was \$2,773 per study.

The Bridge Engineering Assistance Program. This program aids political subdivisions in obtaining information on the structural adequacy of bridges under their jurisdiction. Services are performed by two consultants retained by the Commission on a yearly contract. The services include determination of structural adequacy, inventory of off-system bridges, establishment of posted weight limits, and priorities for repair or replacement of bridges. Structural adequacy reports and inventories were conducted on approximately 113 bridges during the year at an average cost of \$611 per bridge. The 34th Annual Traffic Conference was held May 10-11 on the University of Missouri-Columbia campus as part of the engineering training portion of our annual work program. Ninety-five participants from various county, city, state and federal governments attended this two-day conference which dealt with solutions to traffic problems for cities and counties.

A High Accident Location Countermeasures Workshop was conducted at the University of Missouri-Columbia campus in conjunction with the annual Traffic Conference. The workshop included classroom lecture, discussion, and small group sessions concerning problem-solving in high-

accident locations. It was designed for mayors, city managers, police officers, city engineers and others having responsibility for traffic safety in Missouri communities. A total of 35 attended.

A Traffic Signal Maintenance Workshop was conducted at Jefferson City. The workshop was developed to acquaint traffic control maintenance personnel with the latest technology available and provide them with practical training in the maintenance of modern traffic control devices. A total of 33 maintenance personnel attended.

The Sign Reclamation Plant continues as one of the major money-savers for the Division. The plant has been in operation since 1977. Currently, 79% of the signs provided to the Districts are reclaimed signs from the plant. During the year, 63,618 metal and 675 wood signs were reclaimed. Since its opening, over 1,230,000 square feet of sign material has been processed. In addition, other component parts of sign hardware, such as Z bars, button copy, locking tabs, and backing strips are also salvaged. Total savings to the state during the calendar year amounted to approximately \$339,000.

In 1983, due to the continuing financial situation, the Department continued to operate under a reduced striping program. On routes authorized for two or more centerline and laneline stripings, the first striping was eliminated when not required. Also, edgeline striping outside of urbanized areas is being conducted every two years rather than

yearly. A total of 55,100 miles of stripe was placed in calendar year 1983 compared to approximately 72,000 miles of stripe placed prior to 1980. This total includes 33,300 miles of centerlines and lane-lines, 14,300 miles of edgelines, and 7,500 miles of no passing zones. To complete this work approximately 432,000 gallons of paint and 1,953,000 pounds of reflectorized glass beads were used.

Personnel

The Personnel Division provides assistance to the Department regarding personnel management matters such as employment, affirmative action, employee development and training, employee relations, wage and salary administration, retirement, and the uniform administration of personnel policies.

The Department is an Equal Opportunity Employer. Affirmative action programs remain a high priority and significant progress continues. Recruiting efforts are conducted to locate qualified minorities, including females and other protected group applicants, for job opportunities.

The orientation and training of new employees is primarily conducted through the Department's supervisors. Each new employee is provided with several publications to assist in familiarization with the Department's function, working rules and regulations, and employee benefits.

Employees, in obtaining the fundamental knowledge of their job, may become eligible for attendance at training conferences and seminars related to their specific work assignments. Most technical skills training is provided by operational divisions, utilizing staff with the necessary expertise. The Personnel Division supplements this employee training by periodically conducting supervisory training programs, tailored specifically to the policies and needs of the Department. The programs include special emphasis regarding the supervisor's role in administering a successful affirmative action program.

The Department operates, in conjunction with the University of Missouri, a "Co-Operative Civil Engineer Training Program". This work-academic program provides promising civil engineering students with on-job technical experience by alternating work phases with periods of attendance at the University. Students graduating from this program have acquired actual experience in most phases of highway and transportation engineering, and become productive with a minimum amount of orientation and training. The Co-Operative program is also beneficial when the recruiting of engineers becomes difficult due to starting salaries for graduates. It is also an aid in the Department's Affirmative Action program.

Internal training programs, conducted by Department staff, are held as specific needs indicate. As an example, during 1983 the Mainte-

nance and Traffic Division conducted training sessions for traffic-studies personnel on signal controls and radio troubleshooting.

The Department continues to develop its human resources, minimize costly employee turnover, and maintain a work environment conducive to high employee morale and motivation. All personnel transactions are reviewed by Personnel to attain equitable and uniform salary administration and policy application. Job evaluations are conducted to maintain accurate job specifications and internal salary equity.

To maintain an adequate salary structure and employee-benefits program within budgetary limitations, periodic compensation surveys are conducted. A review of records for prior service with the state which may be creditable toward retirement continued during the year.

Further data processing applications were made to the centralized personnel records, permitting more rapid retrieval of the basic personnel data required for management information and required reports. The processing of unemployment insurance claims is an on-going program.

Special studies and reports were compiled as needed to analyze the effective utilization of employees and to monitor the progress of various programs.

The Department had 5,788 salaried employees on December 31, 1983, as compared to 5,641 on December 31, 1982. Due to budgetary restraints, a very limited number of

temporary seasonal employees was employed. Temporary employees were used for emergency work, such as road maintenance during snowstorms, only as absolutely necessary. The Department has reduced the number of its salaried employees from 6,941 in 1970, primarily through attrition, to correspond with declining revenue.

During the year, 143 employees were processed for retirement, of which 10 were between the ages of 55-59 with 15 or more years service; 98 were between ages 60-64 with 15 or more years service; 10 were between ages 65-70; and 25 qualified for disability benefits. Early retirement, prior to age 65, continues to be the trend. The Highway Employees' and Highway Patrol Retirement System is currently paying benefits to 2,068 retirees or eligible survivors. Pension system trends are monitored to evaluate what improvements in benefits are feasible while maintaining actuarial soundness.

As part of its affirmative action program, the Department is committed, under Title VI, to encourage, develop, and implement programs to assure that minority and female-owned business enterprises are afforded every opportunity to participate as contractors, consultants, and suppliers.

One problem for minority and female contractors has been the requirement of becoming "prequalified" in order to perform federal-aid work. The Department does not require "prequalification" for subcontractors to bid on highway construction projects, but does for prime contractors. Prime

contractors are required to have on file with the Department a valid contractor's questionnaire showing all of the assets and liabilities of the individual, partnership, or corporation.

The size of selected contracts has been reduced to provide more entry opportunities for smaller, less experienced minority and female-owned firms. Joint ventures have also been allowed in order to provide more entry opportunities.

The Department distributes annually an updated list of Missouri and surrounding-area minority and female-owned businesses, categorized by area of expertise, location, specific product, or services. All contractors qualified to bid on work and all political subdivisions having initiated FAU projects are encouraged to use these firms when possible.

Bidders on construction projects are required to certify whether or not they intend to subcontract a portion of the work, and if so, to take affirmative action in attempting to utilize minority and female-owned firms on portions they intend to subcontract.

The Department works with and through minority and female-owned agencies and contractor associations in an effort to increase participation on various projects. Copies of news releases advertising lettings are sent to minority newspapers as well as associations for minority and female-owned contractors.

Through affirmative action efforts, \$43,163,105.00 in contracts and subcontracts were awarded to

minority and female-owned firms during calendar year 1983. This is a significant increase over last year's awards of \$20,494,112.45.

Public Information

Public interest in highway and transportation matters continued at a high level during the year and the Public Information Division showed a corresponding increase in disseminating information on the many facets of Department activities.

News releases, magazines, brochures, leaflets, fact sheets, films, exhibits and displays, radio and television programs, and public speaking engagements were all utilized. Public Information personnel were in constant touch with the state's news media, to which extensive information was distributed both routinely and on special request.

During the year the Division prepared and distributed more than 300 news releases. In addition, numerous special articles, feature stories and photographs were supplied to magazines, newspapers and other publications.

The "Missouri Highway & Transportation News" was published and distributed monthly. This is the Department's employee newspaper with a circulation of 9,000 copies.

A 20-minute slide film on the history of transportation was produced and is now being utilized at various meetings and educational

functions. It was shown widely in schools.

An important beginning was made in a program to help the Department's ten districts develop information activities on a local level. A public information seminar was also conducted in each district.

The annual Highway Gardens exhibit was prepared and staffed at the Missouri State Fair and was seen by more than 30,000 persons.

The Division was called on frequently to assist in arrangements for dedicatory ceremonies and formal openings of major road and bridge projects.

The annual employee service award banquet was prepared and conducted. This gives public recognition to employees with 25 to 45 years of service with the Department.

The Division continued its clipping service to keep Commissioners and Department officials informed on newspaper comments and coverage of highway matters. Daily compilations were made from all newspapers in the state. Information was also collected to provide data on traffic study needs, supply financial data from the county and city level for Planning Division studies, and to record details of traffic fatalities.

Division personnel also supervised the distribution of one million highway maps.

Approximately 200 mail and telephone requests per month were answered by Division personnel regarding maps, road information, routings, educational material, and films.

Right-of-Way

During 1983 the cost of right-of-way acquired for highway construction totaled \$7,755,250.

The Division acquired 358 parcels -- 302 by negotiated settlement and 56 by condemnation or 84 percent by negotiation and 16 percent by condemnation.

Payments totaling \$369,473.09 were made in 1983 under the Relocation Assistance and Payment Program to assist displaced families, business, and farm operations in relocating. During the year, 140 relocation claims were processed and paid.

During the year, the Right-of-Way Division obtained appraisals for 461 parcels. Two separate appraisals were prepared for 11 percent of the parcels involved, making a total of 512 appraisals produced. An average of 39 parcels were appraised each month, which required an average production of 43 separate appraisals per month.

Receipts from the sale of improvements located on right-of-way acquired for highway construction and from the sale of excess property totaled \$543,930.24.

Rental of advance acquisitions and excess property resulted in an income of \$178,031.77.

Surveys & Plans

Surveys and Plans is responsible for roadway improvement studies, plan preparation, and the letting of contracts.

Public meetings and formal hearings were held to explain the need and purpose of highway improvements and to obtain public input. Coordination was also required with local, state and federal agencies. During the past year, tentative location approval was obtained on 66 highway improvements with nine formal location and design public hearings and several public meetings held. Photogrammetric surveys utilizing aerial photography are initiated during early project development. Field surveys supplement this work and provide the basic information for plan development.

Assessments of environmental impact for each project are considered. This includes air quality evaluation, noise studies and cultural, social and economic considerations. Cultural resource survey reports were completed on 89 projects.

Prior to letting highway improvements, right-of-way is acquired, arrangements made for disposition of utility conflicts, and permits and licenses obtained from state and federal agencies. Approval of detailed plans for right-of-way acquisition was obtained on 70 projects in 1983.

Participation in the Disadvantaged Business Enterprise Program continued to increase during the year. The program provides opportunity for businesses owned and controlled by socially and economically disadvantaged individuals or women to participate in the performance of contracts or subcontracts financed in whole or part with federal funds. The amount of participation by these firms during the year was \$30,741,165.00 for Disadvantaged Business Enterprises and \$12,422,000.00 for Women Business Enterprises.

Projects with Interstate and bridge discretionary funds totaling \$55,493,800 were realized in 1983. Discretionary bridge funds are made available for larger bridges. Interstate discretionary funds are an extraordinary allotment of Interstate funds provided as a bonus to states who have obligated their normal Interstate apportionment and are in a position to utilize these funds within a 90-day period. They permit the Department to accelerate completion of the Interstate system of highways.

Bridge discretionary funds facilitate replacement of major structures without using normal federal aid apportionments.

The Division also administered several federal aid programs that provided funding for cities and counties and rail-highway crossing safety improvements.

The Federal Aid Urban program provided federal funding for street and highway construction in cities and urban areas of over 5,000

population. Approximately \$20,077,000 was obligated in cities throughout the state for this program. The FAU funds are generally used to finance 75% of the cost of eligible projects with local jurisdictions providing the 25% matching funds.

The Off-System Bridge Rehabilitation and Replacement Program provided federal funds for bridge repair and replacement on county roads not on the federal aid system. Approximately \$2,891,000 was obligated for projects qualifying for this program, with counties providing 20% matching funds.

The Rail-Highway Safety Program provided funds for the enhancement of grade crossing safety. The Commission approved contracts for the installation of standard or cantilevered signals and/or gates at 60 locations. Included in this total is the replacement of four wig wag signals. Gates were added to the existing signals at 15 crossings on the state highway system. Two signals were replaced with cantilevered signals. The remaining projects were on the FAU and off-system routes. The estimated cost for Commission approved projects in 1983 is \$4,599,000, with more than 70% being spent on city streets and county roads.

The program to install reflectorized crossbucks and advance warning signs at FAU and off-system crossings is considered complete.

The initial priority program to improve the riding quality of 75 high volume crossings with rubber or concrete and 270 low volume crossings

with bituminous material was completed in 1983. During the year, nine high-type and four low-type crossings were completed. Another priority list of high-type crossings has been compiled and this program will continue in the future.

During the past year, 11 highway lettings were held. Projects totaling \$363,571,843.63 were placed under contract. An average of 4.75

bids was received per project.

Prices increased slightly during 1983 with the Missouri average composite cost index closing at 149.9 compared to base year 1977. The 1983 cost index reflects a 1.2% increase when compared with the 1982 cost index of 148.1.

The following table provides a resume of projects awarded for 1983:

<u>1983 REPORT</u>	<u>AWARDS</u>	<u>MILES</u>	<u>PROJECTS</u>
Interstate System	\$142,447,525.71	196.339	92
Primary System	124,434,689.94	259.231	95
Supplementary System	83,927,426.06	169.383	127
Maintenance Work	8,548,500.86	515.293	70
Off-System (County Bridges)	1,739,184.42	2.007	13
Federal Aid Urban (on State System)	<u>2,474,516.64</u>	<u>0.919</u>	<u>5</u>
Totals	\$363,571,843.63	1,143.172	402

Transportation

Aviation

The purpose of the Aviation unit is to promote flying as a mode of travel and to encourage safety and the development of airports and other aviation facilities within the state. Aviation personnel provide technical advice to any airport sponsor, or others interested in the planning, acquisition, construction, or expansion of an airport.

Aviation provides financial assistance to cities, towns, or counties through two grant programs. The Capital Improvement grant program provides financial assistance to sponsors of publicly owned airports for planning, construction, or expansion. Funds under this program are granted on a 50% state/50% local matching basis. Under the airport maintenance program funds may be granted to airport sponsors on a 75% state/25% local basis for maintenance on runways, taxiways, parking aprons, and for emergency repairs. The financing of this program is derived from the unrefunded portion of the motor fuel tax applied to aviation gasoline. A portion of the unrefunded fuel tax is used for the annual publishing and distribution of the Missouri Aeronautical Chart and Airport Directory.

As a result of the Airline Deregulation Act of 1978, the Aviation unit is active in monitoring the small community of Essential Air Service Program which is regulated by

the Civil Aeronautics Board. A requirement of the Act is that all actions affecting the air service to smaller communities must be coordinated with state aviation agencies.

Under a contractual agreement with the Federal Aviation Administration, Aviation inspects the general aviation airports, both publicly and privately owned, throughout the state.

Missouri has a total of 398 airports, 116 are publicly owned and 282 are privately owned. There are 4,540 active general aviation aircraft and 13,511 active pilots in the state. Eleven airports provide scheduled air transportation and enplaned approximately 8.5 million passengers in 1982.

Aviation provided 26 capital improvement grants for a total of \$421,106 and 12 maintenance grants totaling \$131,109. The Missouri Aeronautical Chart and Airport Directory was published for a cost of \$12,428.

There were 154 airports inspected, 138 of them under the FAA Airport Master Record (5010) Program; and 93 obstruction evaluations were performed.

During the year, 39 applications for financial assistance under the airport capital improvement and maintenance programs were received and processed.

Work progressed on the St. Louis Metropolitan Area General Aviation System Study. The study is a

joint effort of the states of Missouri and Illinois, the East-West Gateway Coordinating Council, and the Federal Aviation Administration. The study is being done by the consulting firm of Bucher, Willis and Ratliff of Kansas City. One public meeting was held in 1983 to discuss goals and objectives. As of December 31, 1983, the study was approximately 50% complete.

Railroads

Railroads were involved in three major activity areas during 1983. They were rail planning, project implementation and the Amtrak 403(b) program.

Rail planning in Missouri basically serves two purposes. The first is the development of a balanced, multi-modal transportation system, incorporating the state's program for economic and social development, energy conservation, and environmental protection. The purpose of rail planning is to maintain the railroad as a viable entity within this transportation system, able to compete with the other various modes. The goal is a healthy, competitive rail system able to provide the public services required. Rail planning's second purpose is to provide an overview of the condition of the state's rail system. The objective is the development of programs which would improve the physical condition of the track and return the lines to a level of financial sound-

ness. Other goals of rail planning are to minimize adverse impacts of rail abandonment; to encourage an efficient level of rail service; to retain and attract industry; and to recommend improvements in rail service in order to deliver consumer goods efficiently and inexpensively.

Additionally, a number of associated studies affecting the state were addressed during the year. These included the proposed Grand Trunk/Milwaukee Road acquisition; the proposed Santa Fe/Southern Pacific merger; the CNW's alternate plan of reorganization for the Milwaukee Road; high speed rail passenger potential in Missouri; the CNW/Soo Line proposals for the Rock Island "spine line"; the Rock Island situation between St. Louis and Kansas City; short line rail studies; various trackage rights agreements; and branch line abandonments. Preliminary work and data collection was also begun on the next annual update to the Missouri State Rail Plan.

Two local rail service assistance projects were either undertaken, continued, or completed during 1983. Total funding of these projects (funded by a combination of local and/or railroad monies and federal funds available through the Local Rail Service Assistance Program) totalled \$5,069,655. These two projects were:

1. Nevada, MO to the MO/KS State Line (20.0 miles) -- The project called for 20 miles of rail renewal to replace 90-pound jointed rail with 112-pound continuous welded rail, plus other

track material with 112-pound continuous welded rail, plus other track material and turn-outs. Resurfacing, bridge adjustments and other work was to be performed by the rail carrier itself. This project began in July 1982 and was completed in January 1983. Total project cost was \$2,649,655.

2. Rockville, MO to Nevada, MO (15.0 miles) -- This called for an additional 15 miles of rail renewal and other work to be performed. Preliminary work on this project began in late 1982 with actual installation commencing in April 1983. All actual work was completed in the fall of 1983. The only element of work remaining includes some minor repairs which are scheduled for completion in early 1984. Total project cost is \$2,420,000.

Under the Third State Bond Program, approved in 1982, a rail spur construction project in West Plains, MO was authorized. This project totalling \$61,600 commenced in October 1983.

Missouri's Amtrak 403(b) rail passenger service continued. The "Ann Rutledge" under a match funding ratio of 50 percent federal/50 percent state funds (until October when ratio changed to 65 percent state/35 percent federal) carried 75,482 passengers, an increase of 10 percent over 1982 with an average on-time performance of 84 percent. The "St. Louis/Kansas City Mules" (with the same ratio as the

"Ann Rutledge") carried 52,811 passengers in 1983, an increase of 14 percent over 1982 with an average on-time performance of 91 percent.

Other activities revolving around rail passenger service during 1983 included an eight-phase rail passenger survey used to identify problem areas and assist in fine-tuning the service to better fit Amtrak rider needs; a proposal to extend Amtrak service from St. Louis to Carbondale, Illinois, thus providing a connection with the south-bound "City of New Orleans" for access to the 1984 World's Fair; and work continued on various rail passenger station safety improvements, such as increased lighting at the Jefferson City station.

Transit

The Transit section assists in planning, development and operations of public transit systems and specialized paratransit systems. This function is carried out through administration of state and federal programs relating to general public transportation and specific programs for the elderly and handicapped.

The Missouri Elderly and Handicapped Transportation Assistance Program provides state financial assistance for nonprofit organizations offering transportation services to the elderly and handicapped at below cost rates. In 1983, \$558,620 in state general funds were matched with approximately \$1,893,310

in federal funds to subsidize elderly transportation services. In addition, \$399,830 in state general funds were matched by \$399,830 in county, city or other local funds to provide essential services for other transportation disadvantaged, especially employees of sheltered workshops. Total assistance generated by this program was approximately \$3,251,590. Over 1,300,000 trips were produced.

Transit also administers funds made available by the U.S. Urban Mass Transportation Act of 1964, as amended. Under Section 18, money is available for planning, capital, and operating assistance for public transit systems in non-urbanized areas. There are now 28 operating transit projects in non-urbanized areas of Missouri.

During 1983, \$2,791,070 in federal funds were approved for local capital and operating projects. Federal funds may be used to match local funds for capital purposes on an 80% federal/20% local basis. Federal funds also may be used to defray 50% of a transit system's operating losses.

Another section of the UMTA Act provides federal capital and operating assistance to transit systems in urbanized areas (over 50,000 in population). The Department administers this program for Columbia, Springfield, St. Joseph and Joplin. In 1983, the Department approved for payment \$1,977,533 in federal aid to the transit systems in the four eligible areas.

Capital assistance to nonprofit organizations giving trans-

portation service to the elderly and handicapped is provided by Section 16(b) (2) of the Act. This program provided over \$590,480 in federal assistance. This was matched with over \$147,620 in local funds for the purchase of 42 vehicles, wheelchair lifts, ramps and similar equipment for 25 elderly and handicapped organizations.

Waterways

Waterways provides technical assistance to Missouri port authorities in promoting private capital investment, in increasing the volume of commerce and in the establishment of a free trade zone within their port districts. Every city or county situated upon a navigable waterway may form a port authority. Ten port authorities had been formed along the Missouri and Mississippi Rivers prior to 1983. In April of 1983, the Commission approved the formation of the New Bourbon Regional Port Authority. The boundaries of the new port authority encompass the counties of Ste. Genevieve and Perry. The Department continues to be contacted by interested communities concerning the port authority program.

Waterways assisted the St. Louis County Port Authority in their attempts to establish a foreign trade zone. A public hearing was held in St. Louis by the United States Foreign Trade Zone Board to gather input concerning the port authority's application. As of the end of 1983,

the Board had not reached a decision concerning the application.

In addition to providing technical assistance, funding was also provided to assist port authorities in the administration of site development. During the year, \$321,000 in grants were made to nine

port authorities and the Bi-State Development Agency (the coordinating agency for the Port of Metropolitan St. Louis). These funds are used by the recipient for managerial, engineering, legal, research, promotion, planning and other non-construction related expenses.

PORT SITE DEVELOPMENT GRANTS

Kansas City Port Authority	\$ 33,000
Howard/Cooper County Regional Port Authority	30,000
St. Louis County Port Authority	25,000
St. Louis City Port Authority	34,000
Bi-State Development Agency	16,000
Jefferson County Port Authority	22,000
Southeast Missouri Regional Port Authority	49,000
Mississippi County Port Authority	31,000
New Madrid County Port Authority	31,000
Pemiscot County Port Authority	50,000
	<u>\$321,000</u>

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